IN THE CLAIMS

Please amend the claims as follows, substituting any amended claim(s) for the corresponding pending claim(s):

1. (previously presented) A radio transmitter, comprising:

a digital processor digitally modulates digital data to produce a digitized baseband signal, that converts the digitized baseband signal to an upsampled digitized Intermediate Frequency (IF) signal by upsampling the digitized baseband signal to generate a 338 MHz sample rate, and that outputs the digitized IF signal;

a digital-to-analog converter (DAC) coupled to receive the digitized IF signal wherein the DAC converts the digitized IF signal to a continuous waveform IF signal;

a filter that receives and filters the continuous waveform IF signal and produces a filtered IF signal; and

a translational loop that receives the filtered IF signal and that converts the filtered IF signal to an Radio Frequency (RF) transmit signal.

2. (original) The radio transmitter of claim 1 wherein the translational loop comprises:

a phase-frequency detector (PFD) coupled to receive the filtered IF signal as a reference signal and coupled to receive a feedback signal that is based upon the RF transmit signal, wherein the PFD produces a control signal reflecting a phase difference between the filtered IF signal and the feedback signal;

a charge pump for producing an error current signal based upon and proportional to the control signal;

a loop filter for converting the error current signal to an error voltage signal; and

an oscillator coupled to receive the error voltage signal, the oscillator for producing the RF transmit signal corresponding to a magnitude of the error voltage signal.

3. (original) The radio transmitter of claim 2 further including a divide by N module coupled to receive the oscillation and for dividing the oscillation by N.

4. (original) The radio transmitter of claim 3 further including mixer and filter circuitry for down converting and filtering the oscillation to produce the feedback signal.

5. (original) The radio transmitter of claim 1 wherein the desired frequency of operation of the filtered continuous waveform IF signal is equal to 26 MHz.

6. (original) The radio transmitter of claim 5 having a sample rate that is a multiple of 26 MHz.

7. (original) The radio transmitter of claim 6 wherein the multiple is greater than 2.

8. Cancelled.

9. (previously presented) The radio transmitter of claim 1 wherein the sample rate of the digital processor generates harmonic tones that are located outside of at least one specified frequency band of interest.

10. (previously presented) The radio transmitter of claim 9 wherein the radio transmitter operates according to a global system for mobile communications (GSM).

11 – 19 Cancelled

20. (original) A global system for mobile communications (GSM) radio transmitter, comprising:

digital processor for producing digital data at a 338 MHz sample rate;

a high sample rate digital-to-analog converter (DAC) coupled to receive the digital data wherein the DAC samples the 338 MHz sample rate and produces a continuous waveform IF signal;

a filter for producing a filtered continuous waveform IF signal based upon the continuous waveform IF signal wherein the filtered continuous waveform IF signal oscillates at an IF frequency; and

a translational loop for producing an oscillation to a power amplifier for amplifying the oscillation prior to propagation and for producing a feedback signal based upon the oscillation to a phase-frequency detector (PFD) of the translational loop, wherein the PFD compares the continuous waveform IF signal to the feedback signal as a part of producing the oscillation.

21. (original) The radio transmitter of claim 20 wherein the IF frequency is equal to 26 MHz.

22. (original) The radio transmitter of claim 21 wherein the sample rate of the digital processor and the sample rate of the DAC generate harmonic tones that are located outside of at least one specified frequency band of interest.

23. (original) The radio transmitter of claim 21 wherein a phase modulation index of the digital data is adjusted by ½ according to whether the output oscillation and phase modulation index produced by the translational loop are divided by two prior to being amplified and propagated.

24. (previously presented) The radio transmitter of claim 21 wherein a phase modulation index of the digital data is adjusted whenever the output oscillation is not divided by two prior to being amplified and propagated.

25. (previously presented) The radio transmitter of claim 24 wherein the output oscillation is selectively amplified and propagated as an 1800 MHz carrier signal.

26. (previously presented) The radio transmitter of claim 25 wherein the output oscillation is selectively amplified and propagated as a 1900 MHz carrier signal.

27. (original) The radio transmitter of claim 25 wherein the phase modulation index of the digital data is not adjusted whenever the output oscillation is divided by two prior to being amplified and propagated.

28. (previously presented) The radio transmitter of claim 27 wherein the output oscillation is selectively amplified and propagated as a 900 MHz carrier signal.

29. (previously presented) The radio transmitter of claim 27 wherein the output oscillation is selectively amplified and propagated as a 950 MHz carrier signal.

30 – 37 Cancelled.

38. (New) The radio transmitter of claim 1 wherein a sample rate of the digitized IF signal is a whole multiple of a frequency of a continuous waveform IF that is used to generate an RF signal.

39. (currently amended) A radio transmitter, comprising:

a digital processor digitally modulates digital data to produce a digitized baseband signal, that converts the digitized baseband signal to an upsampled digitized Intermediate Frequency (IF) signal by upsampling the digitized baseband signal by a factor of at least 384 times for which a sample rate of the digitized IF signal is a whole multiple of a frequency of a continuous waveform IF that is used to generate an RF signal, and wherein the digital processor outputs the digitized IF signal;

a digital-to-analog converter (DAC) coupled to receive the digitized IF signal wherein the DAC converts the digitized IF signal to a continuous waveform IF signal;

a filter that receives and filters the continuous waveform IF signal and produces a filtered IF signal; and

a translational loop that receives the filtered IF signal and that converts the filtered IF signal to an Radio Frequency (RF) transmit signal.

40 – 41 Cancelled.

42. (previously presented) The radio transmitter of claim 39 wherein the desired frequency of operation of the filtered continuous waveform IF signal is equal to 26 MHz.

43. (previously presented) The radio transmitter of claim 42 having a sample rate that is a multiple of 26 MHz.

44. (previously presented) The radio transmitter of claim 9 wherein the radio transmitter operates according to a global system for mobile communications (GSM) protocol.